

# Speaking the language of TBI

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WASHINGTON STATE  
DEPARTMENT OF  
**VETERANS  
AFFAIRS**



*"Serving Those Who Served"*

## PRIMARY BLAST INJURY

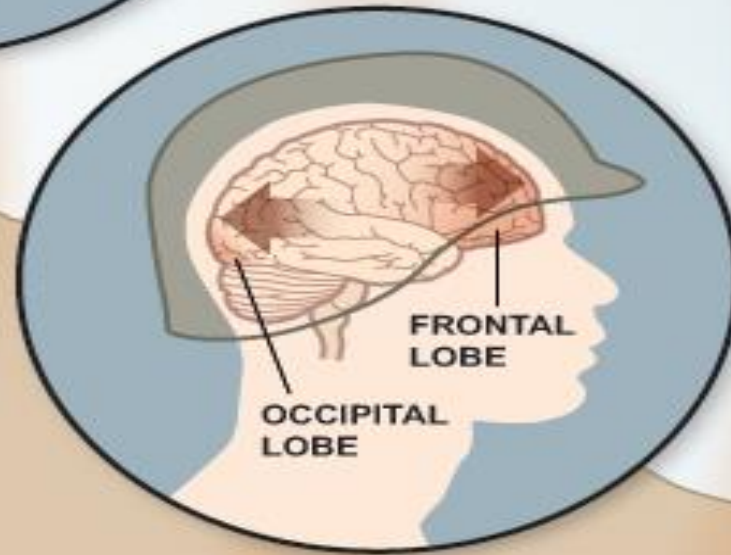
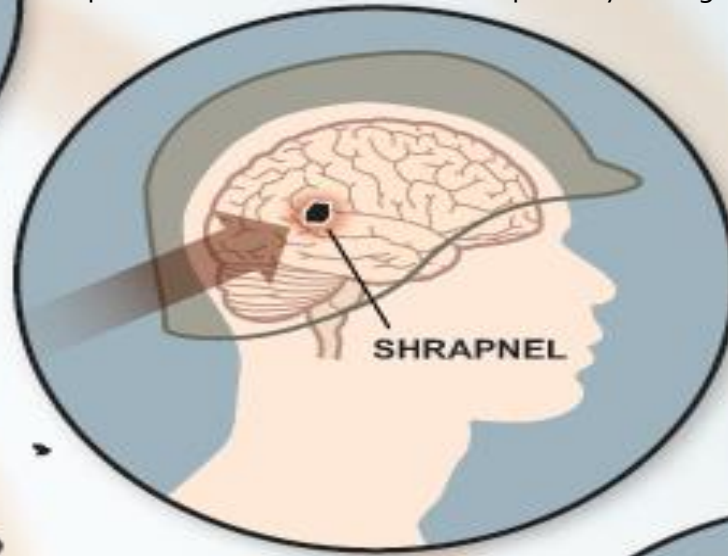
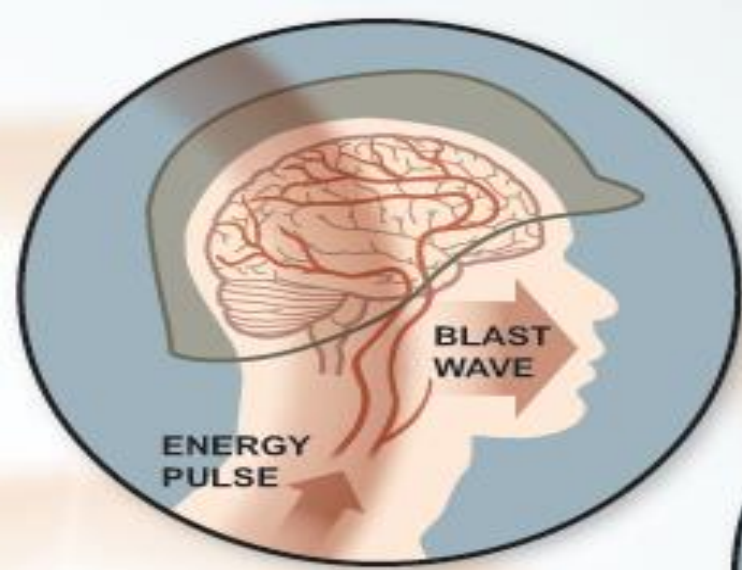
An explosion generates a blast wave traveling faster than sound and creating a surge of high pressure followed by a vacuum. Studies show that the blast wave shoots through armor and soldiers' skulls and brains, even if it doesn't draw blood. While the exact mechanisms by which it damages the brain's cells and circuits are still being studied, the blast wave's pressure has been shown to compress the torso, impacting blood vessels, which send damaging energy pulses into the brain. The pressure can also be transferred partially through the skull, interacting with the brain.

## SECONDARY BLAST INJURY

Shrapnel and debris propelled by the blast can strike a soldier's head, causing either a closed-head injury through blunt force or a penetrating head injury that damages brain tissue.

## TERTIARY BLAST INJURY

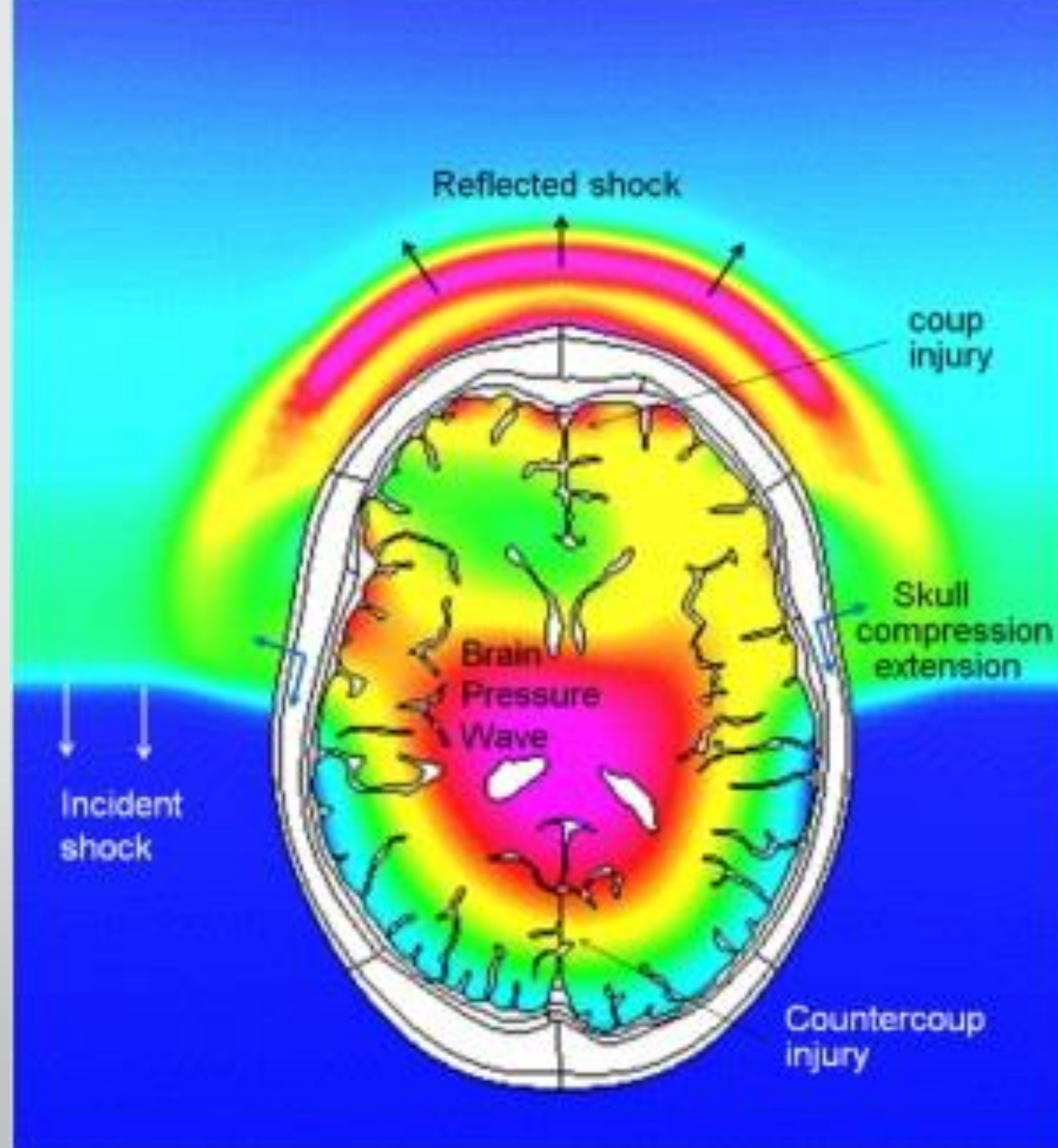
The kinetic energy generated and released by an explosion can accelerate a soldier's body through the air and into the ground or nearby solid object. Once the body stops, the brain continues to move in the direction of the force, hitting the interior of the skull and then bouncing back into the opposite side, causing a coup-contrecoup injury.

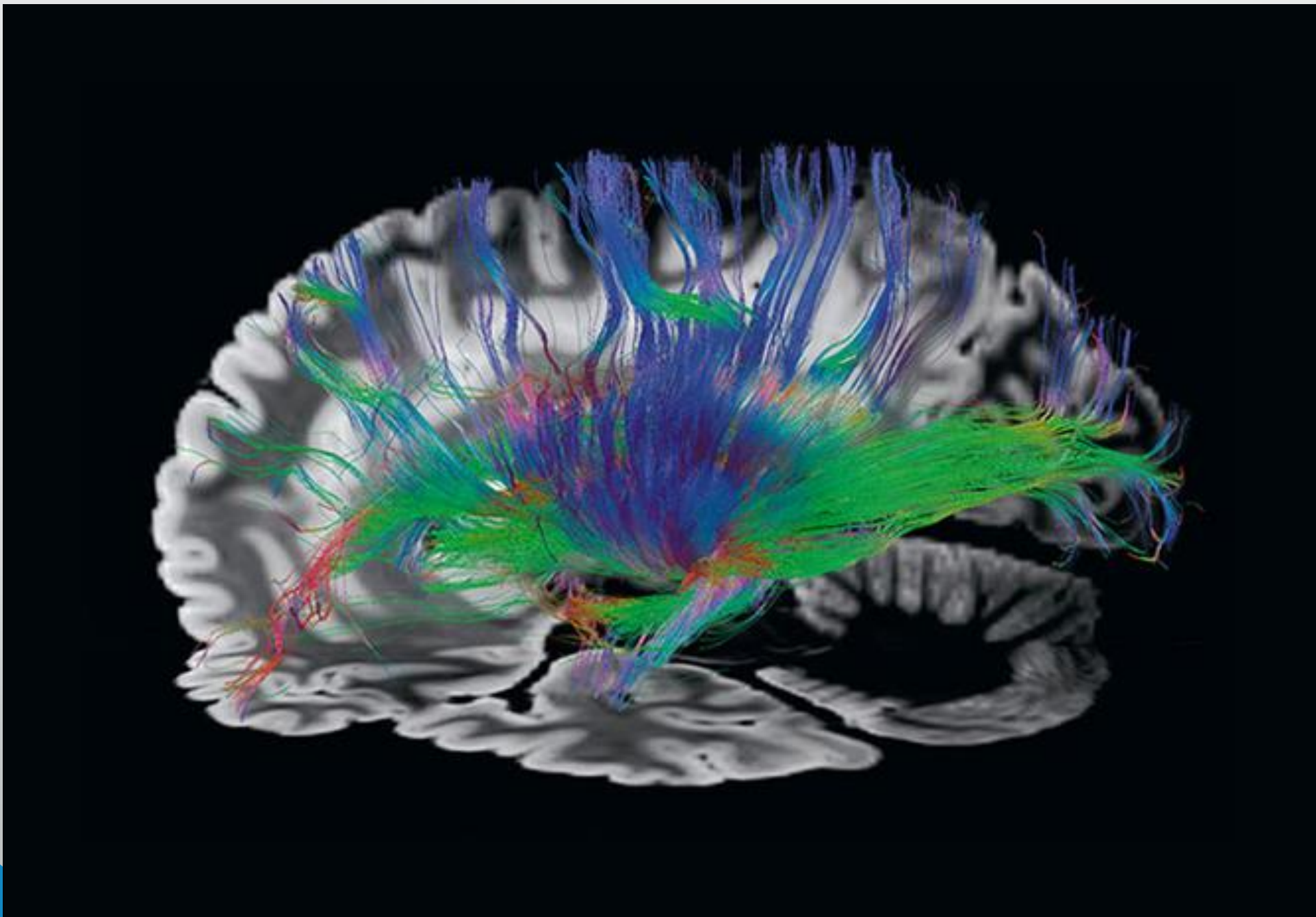




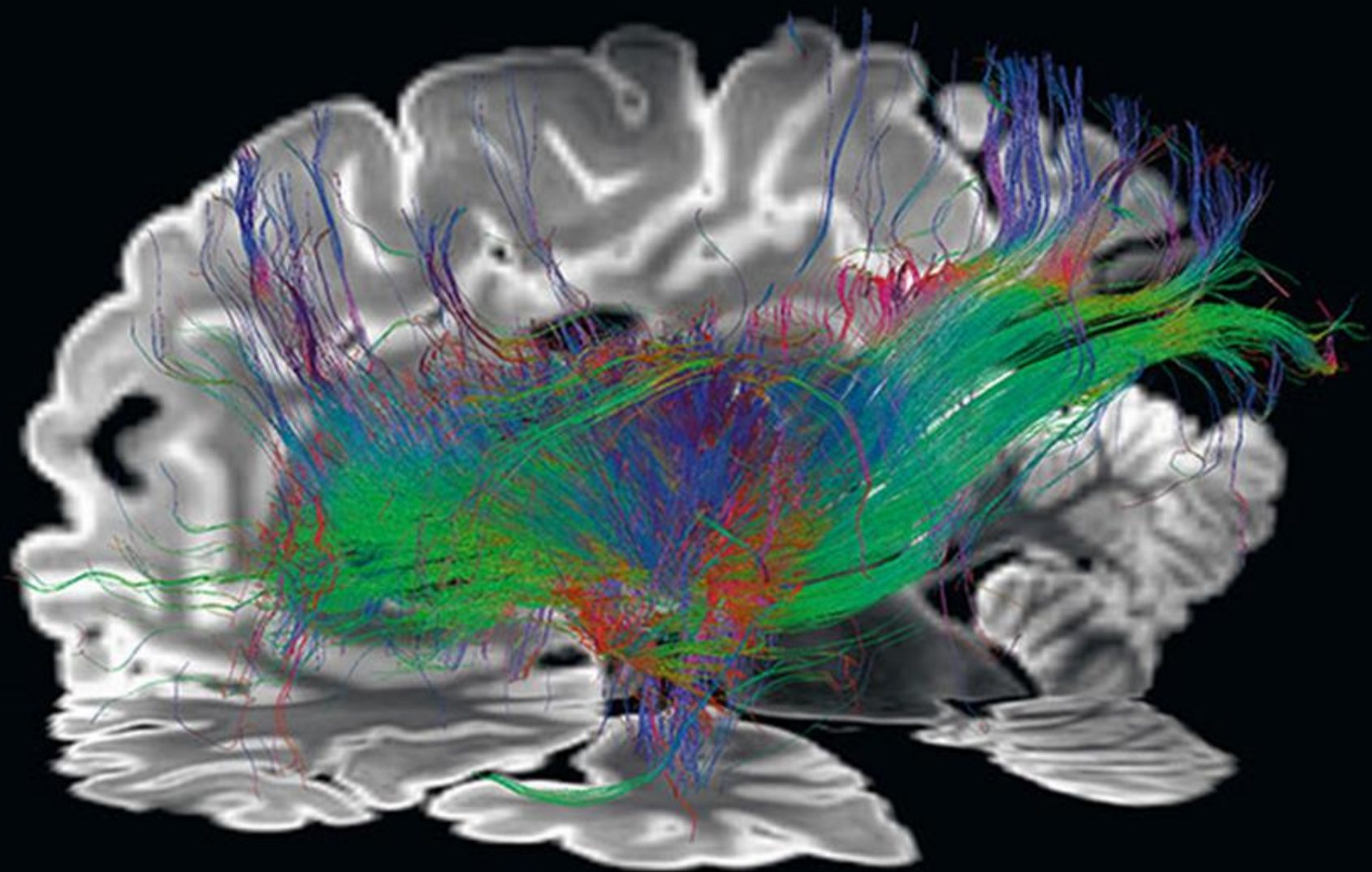




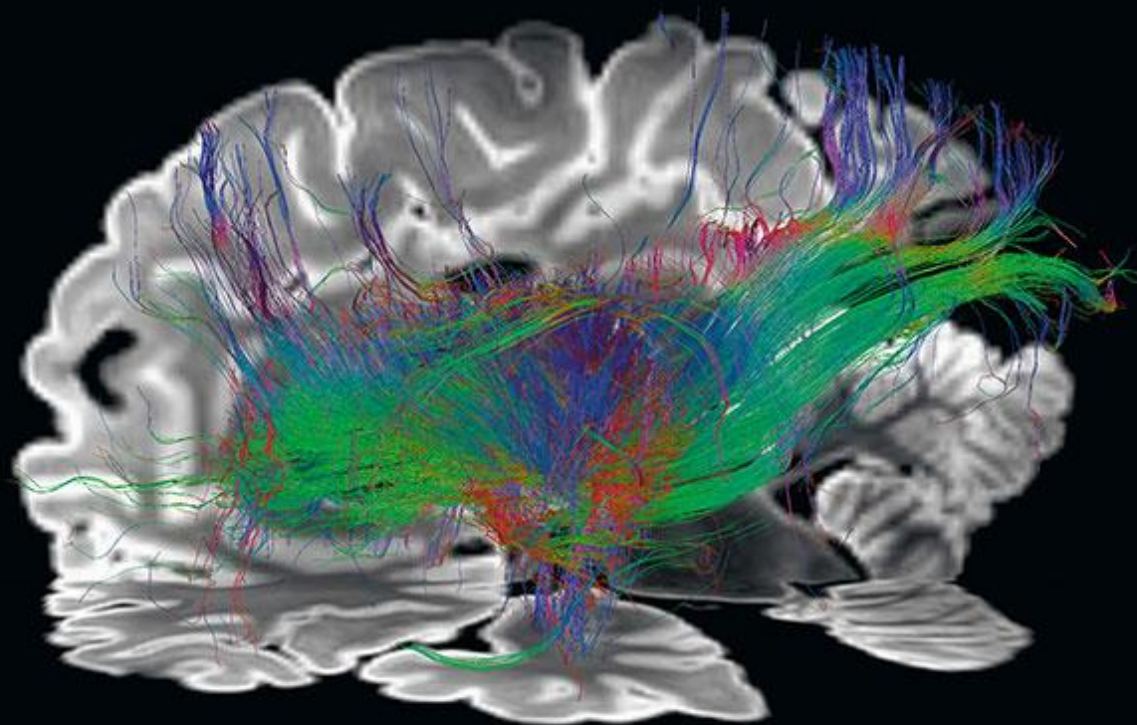
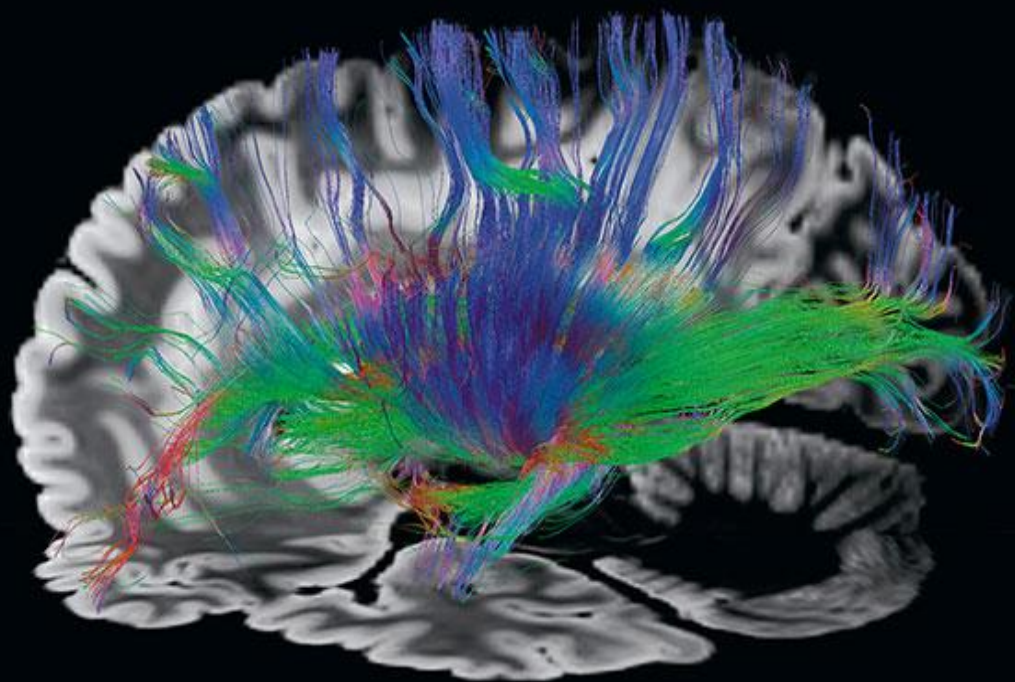




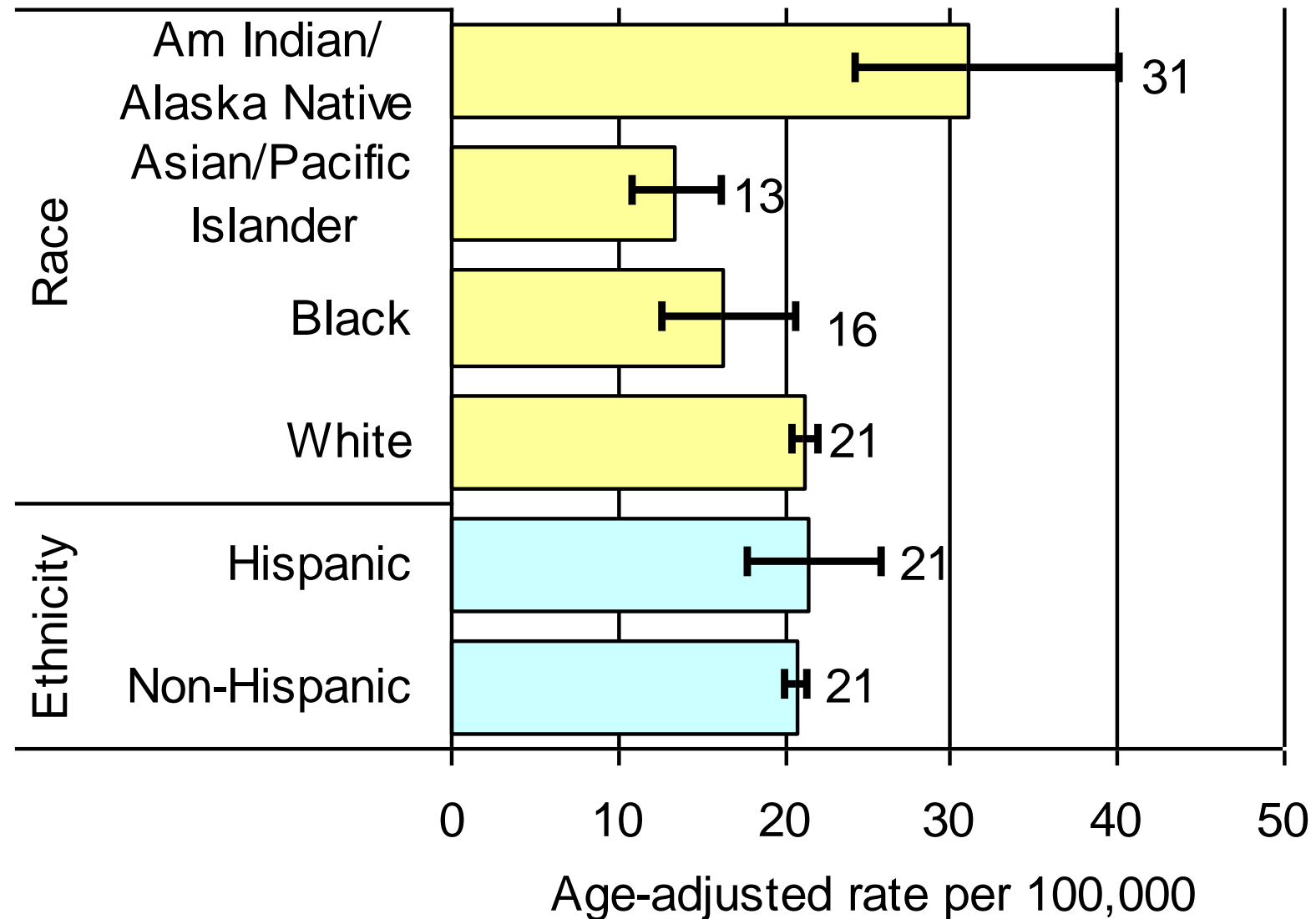








# Traumatic Brain Injury, Mortality Rates By Race and Ethnicity Washington State, 2000-2002





# Increased risk of

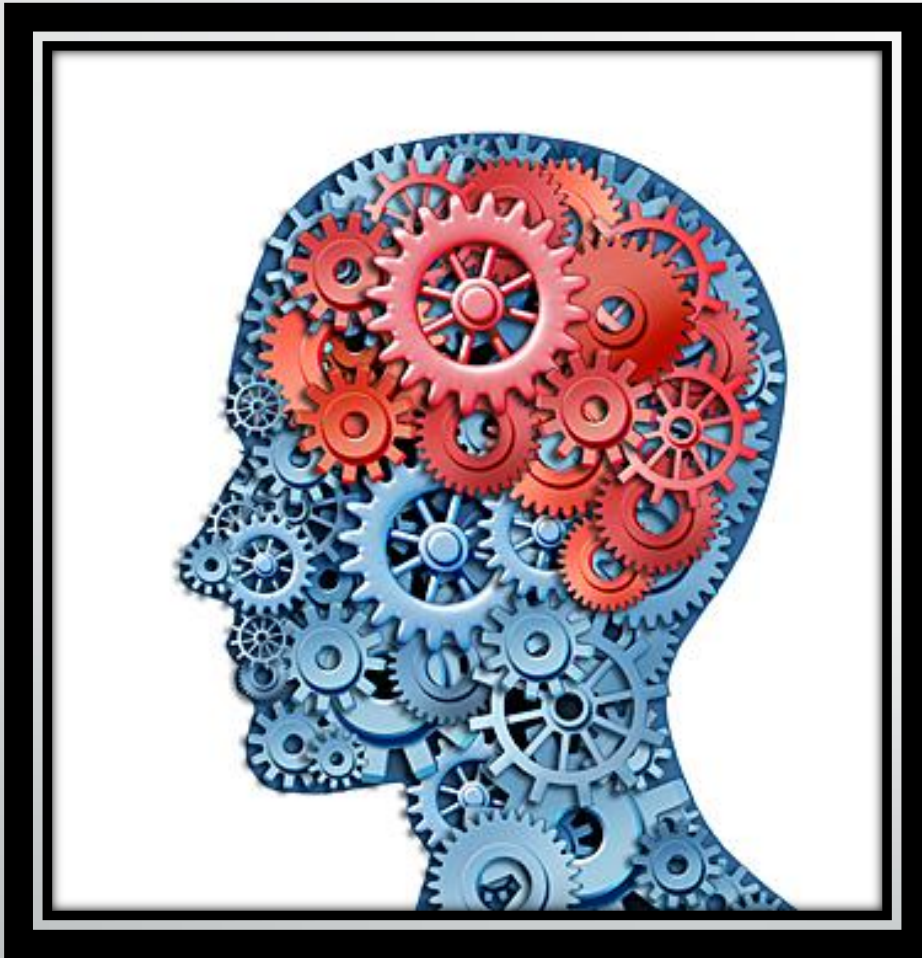
- Depression
  - 59%
  - 24%
  - 83%
- Substance abuse:
- Reviews of five studies of people in substance abuse treatment showed estimates of prior TBI ranging from:
  - 10 to 15 %
  - 18 to 23 %
  - 38 to 63%.
- Incarceration
  - Same
  - Twice
  - More than twice
- And after one brain injury, the risk for a second injury is:
  - No greater
  - 3x greater
  - 4x greater

# Signs and Symptoms of TBI





# How does it affect us: An exercise

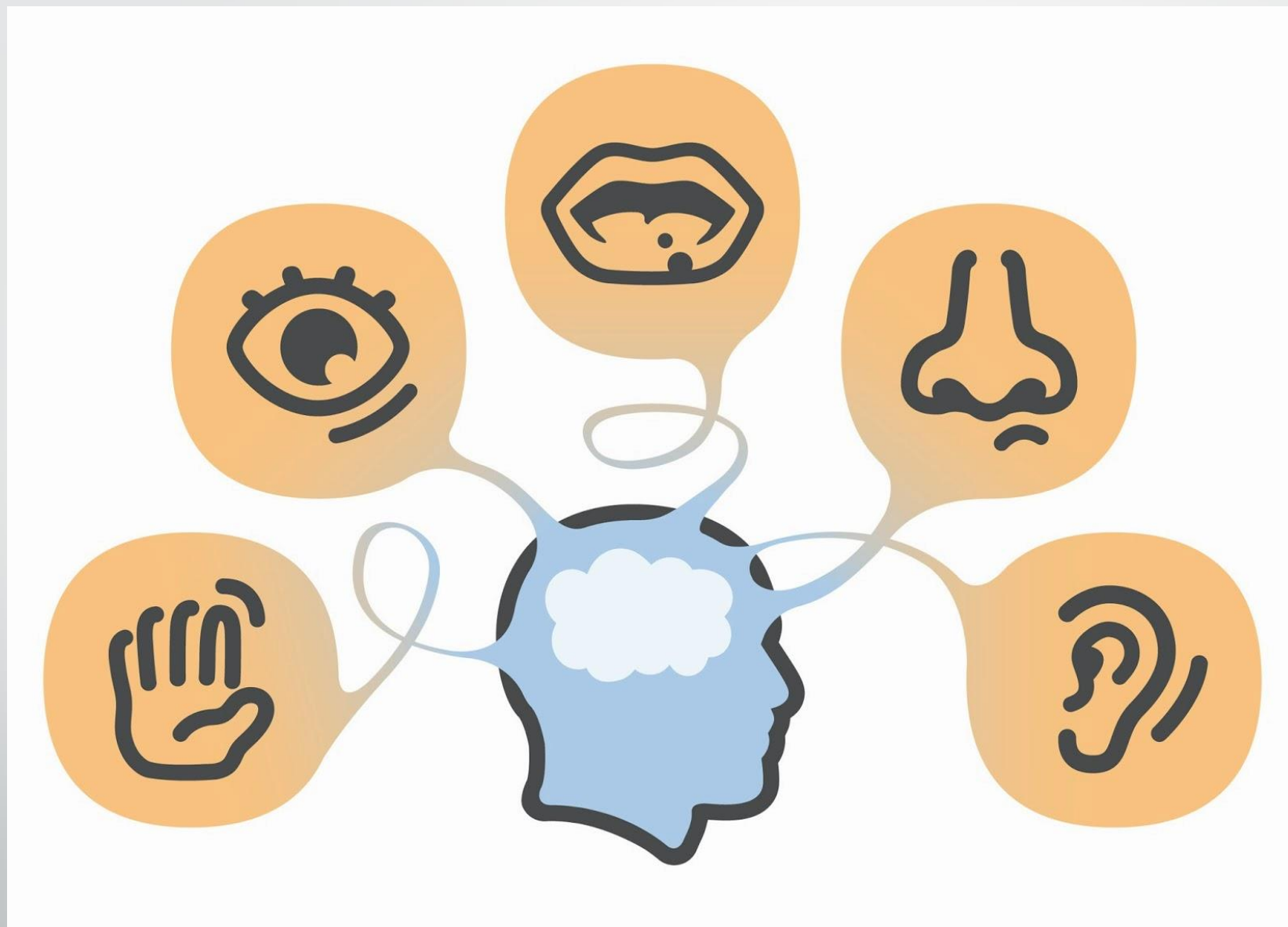


- The Wright family story

# What do we do about it?

- Typical problems
  - Headaches
  - Sensory “overload”
  - Distractibility
  - Memory
  - Sleep problems
  - Emotional regulation
  - Impulse control
- Possible interventions
  - Pharmaceuticals (can be atypical-anti-depressants, nerve type pain meds)/Non-pharmaceuticals – treat like migraine. (Ex. Glasses)
  - Sensory management
  - Mindfulness
  - Prosthetic brains
  - Sleep hygiene, meditations, etc.
  - Mindfulness part II
  - Urge surfing





# Color Psychology

Courtesy of the late, great American Demographics magazine, Feb. 2002

**EFFECT:** arousal, stimulation, increases heart and respiration rate

**PREFERRED BY:** achievers, high-powered, active women, most economically stable, most secure

**EFFECT:** warming, cheering

**PREFERRED BY:** creative & imaginative personalities, future oriented, spiritually sensitive, optimistic (though first color kids reach for, least favorite color overall)

**EFFECT:** calming, cleansing, cooling

**PREFERRED BY:** seeking constancy; conservative, steady  
Nº1 color in America overall,  
Nº1 for casual clothes,  
Nº 2 for business clothes

**EFFECT:** mysterious, thought-provoking, complex, polarizing

**PREFERRED BY:** 18- to 29- year-olds, moody, androgynous, loved or hated more than any other color

**EFFECT:** stimulation but less than red, in your face, vibrant, warning

**PREFERRED BY:** influentials, adolescents, extroverts, adventurous; second least favorite color overall

**EFFECT:** fresh, restful, healing revitalizing, nurturing

**PREFERRED BY:** opinion leaders, trendsetters, ecology-minded; Nº2 favorite color overall

# What do we do about it? (the short list)



- Do's
  - Increase self awareness
  - Identify symptoms and look for patterns
  - Work with psychiatry
  - Educate the care giver(s)
- Don'ts
  - Energy drinks
  - Alcohol
  - Extended strong stimuli
  - Fluorescent lights



# Wrap up!

- How can we help:
  - Justice
  - Behavioral Health
  - Conversations and relations
- Resources:
  - Me!
  - Max!
  - Brain Injury Alliance of Washington
  - Brain Energy Support Team: BEST
  - Brainline.org
  - Defense and Veterans Brain Injury Center (DVBIC)
- Questions!?

